

Remarks

Applicant has amended claims 1, 25, 29, 38 and 40, and has added new claims 41-44. Applicant respectfully submits that no new matter was added by the amendment, as all of the amended matter was either previously illustrated or described in the drawings, written specification and/or claims of the present application. Entry of the amendment and favorable consideration thereof is earnestly requested.

The Examiner has objected to claims 1, 29, 38-39 and 40. The Examiner has rejected claims 25 and 26 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,512,749 to Iddan ("the '749 patent"). The Examiner has further rejected claims 1-7 and 28-40 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,274,871 to Dukor ("the '871 patent") in view of the '749 patent. The Examiner has still further rejected claims 14-19 and 27 under 35 U.S.C. §103(a) as being unpatentable over the '749 patent. Finally the Examiner has rejected claims 8-13 and 20-24 under 35 U.S.C. §103(a) as being unpatentable over the '871 patent in view of the '749 patent and further in view of U.S. Patent No. 5,712,685 to Dumas ("the '685 patent"). These rejections are respectfully traversed.

The present invention employs a relatively small detector array which can provide the benefit of reduced measurement time without incurring the significant increase in costs associated with relatively large detector arrays as taught in both the '749 patent and the '871 patent. Because the present invention utilizes a relatively small detector array, the detector elements are fed in parallel to the processing circuitry for processing of the detector element outputs without multiplexing, which is not taught in the cited prior art. The prior art is directed toward detector arrays that are made as large as practicable to cover as large an area as possible. In stark contrast, the present invention has effectively gone against that line of logic by using a relatively small detector array

using parallel outputs and no multiplexing resulting in a system with substantially lower costs and elevated performance.

As amended claims 1, 25 and 40 all require among other elements a detector having an array of individual detector elements, the outputs of the detector elements being fed in parallel to processing circuitry for processing of the detector element outputs, each detector element having its own associated detection circuitry. In addition, claims 14 and 40 require among other elements a detector array comprising a plurality of individual detector elements, each corresponding to a pixel, which are disposed in spaced relationship, the centre to centre spacing of adjacent elements being substantially equal to or a multiple of the pixel pitch.

The examiner has submitted that the '749 patent discloses and teaches outputs of individual detector elements fed in parallel referring to FIG. 4 and elements 106, 108. (Official Action 1/30/04, pp. 2-3). Applicant respectfully submits however that the '749 patent fails to teach, disclose or suggest each detector element having its own associated detection circuitry as required by amended claims 1, 25 and 40. Rather, the '749 patent teaches that the "signals from even and odd IR sensitive elements 106 are amplified by FPP's 107 and 108, respectively, before transmission to processing means 122." (col. 4, line 67 – col. 5, lines 1-2). Therefore all of the elements have only one "processing means 122", which is used to process multiplexed signals from the array.

The '749 patent actually teaches away from this element stating that the second embodiment FIG. 4 is similar in operation to the first embodiment illustrated in FIG. 2, which teaches that "processor 50" is used for "multiplexing and amplifying the signals from IR sensitive element 48 before their transmission" to "processing means 22." (col. 4, lines 25-28, 48-50). Therefore, the signals are not fed in parallel to the processing circuitry as required by claims 1, 25 and 40. One of the major benefits of the present invention is that "the signals transmitted along these lines are not required to be multiplexed such that each detector element (86) has its own associated detection circuitry."

(p. 19, lines 3-5) (emphasis added). This parallel circuitry provides a significant advantage the '749 patent cannot achieve having a much higher signal-to-noise ratio. For instance, the specification teaches that "the present invention present invention proposes using in an infrared imaging microscope a relatively small detector array whose outputs are sufficiently small in number that they can be processed without the need for complex multiplexing" which serves to increase signal to noise ratio. (p. 4, lines 9-15).

Applicant therefore submits that because the '749 patent fails to teach, disclose or suggest the outputs of the detector elements being fed in parallel to processing circuitry for processing of the detector element outputs, each detector element having its own associated detection circuitry as required by amended claims 1, 25 and 40 it cannot anticipate or render any of these claims obvious. Applicant further respectfully submits that the examiner has noted that the '871 patent "does not specify that the outputs of the detector elements are fed in parallel to a processing means." (Official Action 1/30/04, p. 3).

With respect to claims 14 and 40, the examiner has further submitted that the '749 patent teaches that "each detector elements corresponds to a pixel and thus is in a 1:1 relationship, meaning that the center to center spacing of adjacent detector elements is equal to the pixel pitch (see figure 2)." (Official Action 1/30/04, p. 6). Applicant however respectfully submits that the '749 patent never mentions pixels and that while the examiner has made the above submission, applicant has been unable to find any teaching in the '749 patent to support it. Rather, the '749 patent teaches that an array is used to generate two amplified and multiplexed signals by FPP 107, 108 which are then sent to processing means 122.

Applicant therefore submits that because the '749 patent fails to teach, disclose or suggest a detector array comprising a plurality of individual detector elements, each corresponding to a pixel, which are disposed in spaced relationship, the centre to centre

spacing of adjacent elements being substantially equal to or a multiple of the pixel pitch as required by claims 14 and 40, it cannot render either claim obvious.

New claim 44 requires among other elements that “the detector elements being fed in parallel to processing circuitry for processing of the detector element outputs” and “an assembly movable between an operative and an inoperative position by rotation about an axis in order to change the magnification provided by the optical elements of the microscope.”

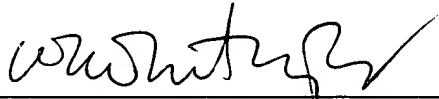
As previously discussed, neither the '749 patent nor the '871 patent teach that the detector elements are fed in parallel to processing circuitry for processing of the detector element outputs.

Applicant further respectfully submits that neither the '749 patent nor the '871 patent teach an assembly movable between an operative and an inoperative position by rotation about an axis in order to change the magnification provided by the optical elements of the microscope as required by new claim 44. While the examiner has submitted that the '749 patent discloses an assembly, that is element 18, that can be moved into or out of the beam of radiation, applicant respectfully submits that element 18 is not movable between an operative and an inoperative position by rotation about an axis in order to change the magnification provided by the optical elements of the microscope as required by claim 44. Rather, the '749 patent teaches that magnification is changed by a conventional turret 30, which has four objective lenses which can be selectively placed in the beam to provide the appropriate magnification. (col. 3, lines 37-50; FIG. 1). Element 18 is a telescopic assembly with a rotating thumbwheel to move the lower part up and down. (col. 3, lines 51-55). Alternatively, in the present invention there is a fixed objective and the magnification is determined by whether mirror assembly in the beam or out of the beam, there being no other assembly to replace it. (p. 10, lines 1-5, 10-17 and p. 11, lines 12-21; FIG. 2).

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Response to Official Action

It is respectfully submitted that claims 1-44, all of the claims remaining in the application, are in order for allowance and early notice to that effect is respectfully requested.

Respectfully submitted,



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